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SEQUENCE LISTING

<110> Moon, Chulso
Mao, Li

<120> DAP-Kinase and HOXA9, Two Human Genes Associated with Genesis, Progression, and Aggressiveness of Non-Small Cell Lung Cancer

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Glu Asn Val Asp Asp Tyr Tyr Asp Thr Gly Glu Glu Leu Gly Ser Gly
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Gln Phe Ala Val Val Lys Lys Cys Arg Glu Lys Ser Thr Gly Leu Gln
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Gly Val Ser Arg Glu Asp Ile Glu Arg Glu Val Ser Ile Leu Lys Glu
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Ile Gln His Pro Asn Val Ile Thr Leu His Glu Val Tyr Glu Asn Lys
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acg gac gtc atc ctg atc ttg gaa ctc gtt gca ggt ggc gag ctg ttt 642
Thr Asp Val Ile Leu Ile Leu Glu Leu Val Ala Gly Gly Glu Leu Phe
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gac ttc tta gct gaa aag gaa tct tta act gaa gag gaa gca act gaa 690
Asp Phe Leu Ala Glu Lys Glu Ser Leu Thr Glu Glu Glu Ala Thr Glu
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aat gtc ccc aaa cct cgg atc aag atc att gac ttt ggg ttg gcc cat      834
Asn Val Pro Lys Pro Arg Ile Lys Ile Ile Asp Phe Gly Leu Ala His
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aaa att gac ttt gga aat gaa ttt aaa aac ata ttt ggg act cca gag      882
Lys Ile Asp Phe Gly Asn Glu Phe Lys Asn Ile Phe Gly Thr Pro Glu
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ttt gtc gct cct gag ata gtc aac tat gaa cct ctt ggt ctt gag gca      930
Phe Val Ala Pro Glu Ile Val Asn Tyr Glu Pro Leu Gly Leu Glu Ala
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Asp Met Trp Ser Ile Gly Val Ile Thr Tyr Ile Leu Leu Ser Gly Ala
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Ser Pro Phe Leu Gly Asp Thr Lys Gln Glu Thr Leu Ala Asn Val Ser
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cta gcc aaa gat ttc ata aga aga ctt ctg gtc aag gat cca aag aag     1122
Leu Ala Lys Asp Phe Ile Arg Arg Leu Leu Val Lys Asp Pro Lys Lys
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aga atg aca att caa gat agt ttg cag cat ccc tgg atc aag cct aaa     1170
Arg Met Thr Ile Gln Asp Ser Leu Gln His Pro Trp Ile Lys Pro Lys
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aaa ttc aag aag ttt gca gcc cgg aaa aaa tgg aaa caa tcc gtt cgc     1266
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Asn Met Ser Val Ala Arg Ser Asp Asp Thr Leu Asp Glu Glu Asp Ser
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Phe Val Met Lys Ala Ile Ile His Ala Ile Asn Asp Asp Asn Val Pro
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aat att caa ata cta cag ttg ctc att aaa aga ggc tcg aga atc gat     1554
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gtc cag gat aag ggc ggg tcc aat gcc gtc tac tgg gct gct cgg cat     1602
Val Gln Asp Lys Gly Gly Ser Asn Ala Val Tyr Trp Ala Ala Arg His
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ggc cac gtc gat acc ttg aaa ttt ctc agt gag aac aaa tgc cct ttg     1650
Gly His Val Asp Thr Leu Lys Phe Leu Ser Glu Asn Lys Cys Pro Leu
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Asp Val Lys Asp Lys Ser Gly Glu Met Ala Leu His Val Ala Ala Arg
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tat ggc cat gct gac gtg gct caa gtt act tgt gca gct tcg gct caa     1746
Tyr Gly His Ala Asp Val Ala Gln Val Thr Cys Ala Ala Ser Ala Gln
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atc cca ata tcc agg aca aag gaa gaa gaa acc ccc ctg cac tgt gct     1794
Ile Pro Ile Ser Arg Thr Lys Glu Glu Glu Thr Pro Leu His Cys Ala
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gct tgg cac ggc tat tac tct gtg gcc aaa gcc ctt tgt gaa gcc ggc     1842
Ala Trp His Gly Tyr Tyr Ser Val Ala Lys Ala Leu Cys Glu Ala Gly
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Cys Asn Val Asn Ile Lys Asn Arg Glu Gly Glu Thr Pro Leu Leu Thr
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gcc tct gcc agg ggc tac cac gac atc gtg gag tgt ctg gcc gaa cat     1938
Ala Ser Ala Arg Gly Tyr His Asp Ile Val Glu Cys Leu Ala Glu His
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gga gcc gac ctt aat gct tgc gac aag gac gga cac att gcc ctt cat     1986
Gly Ala Asp Leu Asn Ala Cys Asp Lys Asp Gly His Ile Ala Leu His
535                 540                 545                 550

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Leu Ala Val Arg Arg Cys Gln Met Glu Val Ile Lys Thr Leu Leu Ser
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caa ggg tgt ttc gtc gat tat caa gac agg cac ggc aat act ccc ctc     2082
Gln Gly Cys Phe Val Asp Tyr Gln Asp Arg His Gly Asn Thr Pro Leu
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cat gtg gca tgt aaa gat ggc aac atg cct atc gtg gtg gcc ctc tgt     2130
His Val Ala Cys Lys Asp Gly Asn Met Pro Ile Val Val Ala Leu Cys
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tgt ctg atg gga gcc agc gtt gag gcg ctg acc acg gac gga aag acg      2274
Cys Leu Met Gly Ala Ser Val Glu Ala Leu Thr Thr Asp Gly Lys Thr
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gca gaa gat ctt gct aga tcg gaa cag cac gag cac gta gca ggt ctc      2322
Ala Glu Asp Leu Ala Arg Ser Glu Gln His Glu His Val Ala Gly Leu
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ctt gca aga ctt cga aag gat acg cac cga gga ctc ttc atc cag cag      2370
Leu Ala Arg Leu Arg Lys Asp Thr His Arg Gly Leu Phe Ile Gln Gln
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ctc cga ccc aca cag aac ctg cag cca aga att aag ctc aag ctg ttt      2418
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Gly Leu Leu Arg Ser Phe Phe Arg Arg Arg Pro Arg Leu Ser Ser
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acc aac tcc agc agg ttc cca cct tca ccc ctg gct tct aag ccc aca      2562
Thr Asn Ser Ser Arg Phe Pro Pro Ser Pro Leu Ala Ser Lys Pro Thr
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gtc tca gtg agc atc aac aac ctg tac cca ggc tgc gag aac gtg agt      2610
Val Ser Val Ser Ile Asn Asn Leu Tyr Pro Gly Cys Glu Asn Val Ser
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gtg agg agc cgc agc atg atg ttc gag ccg ggt ctt acc aaa ggg atg      2658
Val Arg Ser Arg Ser Met Met Phe Glu Pro Gly Leu Thr Lys Gly Met
    760                 765                 770

ctg gag gtg ttt gtg gcc ccg acc cac cac ccg cac tgc tcg gcc gat      2706
Leu Glu Val Phe Val Ala Pro Thr His His Pro His Cys Ser Ala Asp
775                 780                 785                 790

gac cag tcc acc aag gcc atc gac atc cag aac gct tat ttg aat gga      2754
Asp Gln Ser Thr Lys Ala Ile Asp Ile Gln Asn Ala Tyr Leu Asn Gly
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gtt ggc gat ttc agc gtg tgg gag ttc tct gga aat cct gtg tat ttc      2802
Val Gly Asp Phe Ser Val Trp Glu Phe Ser Gly Asn Pro Val Tyr Phe
            810                 815                 820

tgc tgt tat gac tat ttt gct gca aat gat ccc acg tca atc cat gtt      2850
Cys Cys Tyr Asp Tyr Phe Ala Ala Asn Asp Pro Thr Ser Ile His Val
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Val Val Phe Ser Leu Glu Glu Pro Tyr Glu Ile Gln Leu Asn Pro Val
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att ttc tgg ctc agt ttc ctg aag tcc ctt gtc cca gtt gaa gaa ccc      2946
Ile Phe Trp Leu Ser Phe Leu Lys Ser Leu Val Pro Val Glu Glu Pro
855                 860                 865                 870

ata gcc ttc ggt ggc aag ctg aag aac cca ctc caa gtt gtc ctg gtg      2994
Ile Ala Phe Gly Gly Lys Leu Lys Asn Pro Leu Gln Val Val Leu Val
                875                 880                 885

gcc acc cac gct gac atc atg aat gtt cct cga ccg gct gga ggc gag      3042
Ala Thr His Ala Asp Ile Met Asn Val Pro Arg Pro Ala Gly Gly Glu
            890                 895                 900

ttt gga tat gac aaa gac aca tcg ttg ctg aaa gag att agg aac agg      3090
Phe Gly Tyr Asp Lys Asp Thr Ser Leu Leu Lys Glu Ile Arg Asn Arg
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ttt gga aat gat ctt cac att tca aat aag ctg ttt gtt ctg gat gct      3138
Phe Gly Asn Asp Leu His Ile Ser Asn Lys Leu Phe Val Leu Asp Ala
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ggg gct tct ggg tca aag gac atg aag gta ctt cga aat cat ctg caa      3186
Gly Ala Ser Gly Ser Lys Asp Met Lys Val Leu Arg Asn His Leu Gln
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gaa ata cga agc cag att gtt tcg gtc tgt cct ccc atg act cac ctg      3234
Glu Ile Arg Ser Gln Ile Val Ser Val Cys Pro Pro Met Thr His Leu
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tgt gag aaa atc atc tcc acg ctg cct tcc tgg agg aag ctc aat gga      3282
Cys Glu Lys Ile Ile Ser Thr Leu Pro Ser Trp Arg Lys Leu Asn Gly
            970                 975                 980

ccc aac cag ctg atg tcg ctg cag cag ttt gtg tac gac gtg cag gac      3330
Pro Asn Gln Leu Met Ser Leu Gln Gln Phe Val Tyr Asp Val Gln Asp
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cag ctg  aac ccc ctg gcc agc  gag gag gac ctc agg  cgc att gct      3375
Gln Leu  Asn Pro Leu Ala Ser  Glu Glu Asp Leu Arg  Arg Ile Ala
    1000                1005                1010

cag cag  ctc cac agc aca ggc  gag atc aac atc atg  caa agt gaa      3420
Gln Gln  Leu His Ser Thr Gly  Glu Ile Asn Ile Met  Gln Ser Glu
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aca gtt  cag gac gtg ctg ctc  ctg gac ccc cgc tgg  ctc tgc aca      3465
Thr Val  Gln Asp Val Leu Leu  Leu Asp Pro Arg Trp  Leu Cys Thr
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aac gtc  ctg ggg aag ttg ctg  tcc gtg gag acc cca  cgg gcg ctg      3510
Asn Val  Leu Gly Lys Leu Leu  Ser Val Glu Thr Pro  Arg Ala Leu
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Met Asp  Ile Cys Ala Arg Asp  Leu Ser Ser Gly Thr  Met Val Asp
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gtc cca  gcc ctg atc aag aca  gac aac ctg cac cgc  tcc tgg gct      3690
Val Pro  Ala Leu Ile Lys Thr  Asp Asn Leu His Arg  Ser Trp Ala
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gat gag  gag gac gag gtg atg  gtg tat ggt ggc gtg  cgc atc gtg      3735
Asp Glu  Glu Asp Glu Val Met  Val Tyr Gly Gly Val  Arg Ile Val
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ccc gtg  gaa cac ctc acc ccc  ttc cca tgt ggc atc  ttt cac aag      3780
Pro Val  Glu His Leu Thr Pro  Phe Pro Cys Gly Ile  Phe His Lys
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gtc cag  gtg aac ctg tgc cgg  tgg atc cac cag caa  agc aca gag      3825
Val Gln  Val Asn Leu Cys Arg  Trp Ile His Gln Gln  Ser Thr Glu
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ggc gac  gcg gac atc cgc ctg  tgg gtg aat ggc tgc  aag ctg gcc      3870
Gly Asp  Ala Asp Ile Arg Leu  Trp Val Asn Gly Cys  Lys Leu Ala
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aac cgt  ggg gcc gag ctg ctg  gtg ctg ctg gtc aac  cac ggc cag      3915
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Gly Ile  Glu Val Gln Val Arg  Gly Leu Glu Thr Glu  Lys Ile Lys
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tgc tgc  ctg ctg ctg gac tcg  gtg tgc agc acc att  gag aac gtc      4005
Cys Cys  Leu Leu Leu Asp Ser  Val Cys Ser Thr Ile  Glu Asn Val
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atg gcc  acc acg ctg cca ggg  ctc ctg acc gtg aag  cat tac ctg      4050
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Ser Pro  Gln Gln Leu Arg Glu  His His Glu Pro Val  Met Ile Tyr
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cag cca  cgg gac ttc ttc cgg  gca cag act ctg aag  gaa acc tca      4140
Gln Pro  Arg Asp Phe Phe Arg  Ala Gln Thr Leu Lys  Glu Thr Ser
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ctg acc  aac acc atg ggg ggg  tac aag gaa agc ttc  agc agc atc      4185
Leu Thr  Asn Thr Met Gly Gly  Tyr Lys Glu Ser Phe  Ser Ser Ile
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Leu Ser  Arg Leu Leu Asp Pro  Pro Asp Pro Leu Gly  Lys Asp Trp
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Cys Leu  Leu Ala Met Asn Leu  Gly Leu Pro Asp Leu  Val Ala Lys
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Tyr Asn  Thr Asn Asn Gly Ala  Pro Lys Asp Phe Leu  Pro Ser Pro
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Leu His  Ala Leu Leu Arg Glu  Trp Thr Thr Tyr Pro  Glu Ser Thr
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Gly Thr  Ser Tyr Asn Ser Ile  Ser Ser Val Val Ser  Arg
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Val Ser Ile Leu Lys Glu Ile Gln His Pro Asn Val Ile Thr Leu His
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Ala Gly Gly Glu Leu Phe Asp Phe Leu Ala Glu Lys Glu Ser Leu Thr
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Glu Glu Glu Ala Thr Glu Phe Leu Lys Gln Ile Leu Asn Gly Val Tyr
115 120 125

Tyr Leu His Ser Leu Gln Ile Ala His Phe Asp Leu Lys Pro Glu Asn
130 135 140

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145 150 155 160

Asp Phe Gly Leu Ala His Lys Ile Asp Phe Gly Asn Glu Phe Lys Asn
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210 215 220

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Val Lys Asp Pro Lys Lys Arg Met Thr Ile Gln Asp Ser Leu Gln His
260 265 270

Pro Trp Ile Lys Pro Lys Asp Thr Gln Gln Ala Leu Ser Arg Lys Ala
275 280 285

Ser Ala Val Asn Met Glu Lys Phe Lys Lys Phe Ala Ala Arg Lys Lys
290 295 300

Trp Lys Gln Ser Val Arg Leu Ile Ser Leu Cys Gln Arg Leu Ser Arg
305 310 315 320

Ser Phe Leu Ser Arg Ser Asn Met Ser Val Ala Arg Ser Asp Asp Thr
325 330 335

Leu Asp Glu Glu Asp Ser Phe Val Met Lys Ala Ile Ile His Ala Ile
340 345 350

```
Asn Asp Asp Asn Val Pro Gly Leu Gln His Leu Leu Gly Ser Leu Ser
        355                 360                 365

Asn Tyr Asp Val Asn Gln Pro Asn Lys His Gly Thr Pro Pro Leu Leu
    370                 375                 380

Ile Ala Ala Gly Cys Gly Asn Ile Gln Ile Leu Gln Leu Leu Ile Lys
385                 390                 395                 400

Arg Gly Ser Arg Ile Asp Val Gln Asp Lys Gly Gly Ser Asn Ala Val
                405                 410                 415

Tyr Trp Ala Ala Arg His Gly His Val Asp Thr Leu Lys Phe Leu Ser
            420                 425                 430

Glu Asn Lys Cys Pro Leu Asp Val Lys Asp Lys Ser Gly Glu Met Ala
        435                 440                 445

Leu His Val Ala Ala Arg Tyr Gly His Ala Asp Val Ala Gln Val Thr
    450                 455                 460

Cys Ala Ala Ser Ala Gln Ile Pro Ile Ser Arg Thr Lys Glu Glu Glu
465                 470                 475                 480

Thr Pro Leu His Cys Ala Ala Trp His Gly Tyr Tyr Ser Val Ala Lys
                485                 490                 495

Ala Leu Cys Glu Ala Gly Cys Asn Val Asn Ile Lys Asn Arg Glu Gly
            500                 505                 510

Glu Thr Pro Leu Leu Thr Ala Ser Ala Arg Gly Tyr His Asp Ile Val
        515                 520                 525

Glu Cys Leu Ala Glu His Gly Ala Asp Leu Asn Ala Cys Asp Lys Asp
    530                 535                 540

Gly His Ile Ala Leu His Leu Ala Val Arg Arg Cys Gln Met Glu Val
545                 550                 555                 560

Ile Lys Thr Leu Leu Ser Gln Gly Cys Phe Val Asp Tyr Gln Asp Arg
                565                 570                 575

His Gly Asn Thr Pro Leu His Val Ala Cys Lys Asp Gly Asn Met Pro
            580                 585                 590
```

```
Ile Val Val Ala Leu Cys Glu Ala Asn Cys Asn Leu Asp Ile Ser Asn
        595                 600                 605

Lys Tyr Gly Arg Thr Pro Leu His Leu Ala Ala Asn Asn Gly Ile Leu
    610                 615                 620

Asp Val Val Arg Tyr Leu Cys Leu Met Gly Ala Ser Val Glu Ala Leu
625                 630                 635                 640

Thr Thr Asp Gly Lys Thr Ala Glu Asp Leu Ala Arg Ser Glu Gln His
                645                 650                 655

Glu His Val Ala Gly Leu Leu Ala Arg Leu Arg Lys Asp Thr His Arg
            660                 665                 670

Gly Leu Phe Ile Gln Gln Leu Arg Pro Thr Gln Asn Leu Gln Pro Arg
        675                 680                 685

Ile Lys Leu Lys Leu Phe Gly His Ser Gly Ser Gly Lys Thr Thr Leu
    690                 695                 700

Val Glu Ser Leu Lys Cys Gly Leu Leu Arg Ser Phe Phe Arg Arg Arg
705                 710                 715                 720

Arg Pro Arg Leu Ser Ser Thr Asn Ser Ser Arg Phe Pro Pro Ser Pro
                725                 730                 735

Leu Ala Ser Lys Pro Thr Val Ser Val Ser Ile Asn Asn Leu Tyr Pro
            740                 745                 750

Gly Cys Glu Asn Val Ser Val Arg Ser Arg Ser Met Met Phe Glu Pro
        755                 760                 765

Gly Leu Thr Lys Gly Met Leu Glu Val Phe Val Ala Pro Thr His His
    770                 775                 780

Pro His Cys Ser Ala Asp Asp Gln Ser Thr Lys Ala Ile Asp Ile Gln
785                 790                 795                 800

Asn Ala Tyr Leu Asn Gly Val Gly Asp Phe Ser Val Trp Glu Phe Ser
                805                 810                 815

Gly Asn Pro Val Tyr Phe Cys Cys Tyr Asp Tyr Phe Ala Ala Asn Asp
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820 825 830

Pro Thr Ser Ile His Val Val Val Phe Ser Leu Glu Glu Pro Tyr Glu
835 840 845

Ile Gln Leu Asn Pro Val Ile Phe Trp Leu Ser Phe Leu Lys Ser Leu
850 855 860

Val Pro Val Glu Glu Pro Ile Ala Phe Gly Gly Lys Leu Lys Asn Pro
865 870 875 880

Leu Gln Val Val Leu Val Ala Thr His Ala Asp Ile Met Asn Val Pro
885 890 895

Arg Pro Ala Gly Gly Glu Phe Gly Tyr Asp Lys Asp Thr Ser Leu Leu
900 905 910

Lys Glu Ile Arg Asn Arg Phe Gly Asn Asp Leu His Ile Ser Asn Lys
915 920 925

Leu Phe Val Leu Asp Ala Gly Ala Ser Gly Ser Lys Asp Met Lys Val
930 935 940

Leu Arg Asn His Leu Gln Glu Ile Arg Ser Gln Ile Val Ser Val Cys
945 950 955 960

Pro Pro Met Thr His Leu Cys Glu Lys Ile Ile Ser Thr Leu Pro Ser
965 970 975

Trp Arg Lys Leu Asn Gly Pro Asn Gln Leu Met Ser Leu Gln Gln Phe
980 985 990

Val Tyr Asp Val Gln Asp Gln Leu Asn Pro Leu Ala Ser Glu Glu Asp
995 1000 1005

Leu Arg Arg Ile Ala Gln Gln Leu His Ser Thr Gly Glu Ile Asn
1010 1015 1020

Ile Met Gln Ser Glu Thr Val Gln Asp Val Leu Leu Leu Asp Pro
1025 1030 1035

Arg Trp Leu Cys Thr Asn Val Leu Gly Lys Leu Leu Ser Val Glu
1040 1045 1050

```
Thr Pro  Arg Ala Leu His His  Tyr Arg Gly Arg Tyr  Thr Val Glu
    1055                 1060                 1065

Asp Ile  Gln Arg Leu Val Pro  Asp Ser Asp Val Glu  Glu Leu Leu
    1070                 1075                 1080

Gln Ile  Leu Asp Ala Met Asp  Ile Cys Ala Arg Asp  Leu Ser Ser
    1085                 1090                 1095

Gly Thr  Met Val Asp Val Pro  Ala Leu Ile Lys Thr  Asp Asn Leu
    1100                 1105                 1110

His Arg  Ser Trp Ala Asp Glu  Glu Asp Glu Val Met  Val Tyr Gly
    1115                 1120                 1125

Gly Val  Arg Ile Val Pro Val  Glu His Leu Thr Pro  Phe Pro Cys
    1130                 1135                 1140

Gly Ile  Phe His Lys Val Gln  Val Asn Leu Cys Arg  Trp Ile His
    1145                 1150                 1155

Gln Gln  Ser Thr Glu Gly Asp  Ala Asp Ile Arg Leu  Trp Val Asn
    1160                 1165                 1170

Gly Cys  Lys Leu Ala Asn Arg  Gly Ala Glu Leu Leu  Val Leu Leu
    1175                 1180                 1185

Val Asn  His Gly Gln Gly Ile  Glu Val Gln Val Arg  Gly Leu Glu
    1190                 1195                 1200

Thr Glu  Lys Ile Lys Cys Cys  Leu Leu Leu Asp Ser  Val Cys Ser
    1205                 1210                 1215

Thr Ile  Glu Asn Val Met Ala  Thr Thr Leu Pro Gly  Leu Leu Thr
    1220                 1225                 1230

Val Lys  His Tyr Leu Ser Pro  Gln Gln Leu Arg Glu  His His Glu
    1235                 1240                 1245

Pro Val  Met Ile Tyr Gln Pro  Arg Asp Phe Phe Arg  Ala Gln Thr
    1250                 1255                 1260

Leu Lys  Glu Thr Ser Leu Thr  Asn Thr Met Gly Gly  Tyr Lys Glu
    1265                 1270                 1275
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```
Ser Phe  Ser Ser Ile Met Cys  Phe Gly Cys His Asp  Val Tyr Ser
    1280                 1285                 1290

Gln Ala  Ser Leu Gly Met Asp  Ile His Ala Ser Asp  Leu Asn Leu
    1295                 1300                 1305

Leu Thr  Arg Arg Lys Leu Ser  Arg Leu Leu Asp Pro  Pro Asp Pro
    1310                 1315                 1320

Leu Gly  Lys Asp Trp Cys Leu  Leu Ala Met Asn Leu  Gly Leu Pro
    1325                 1330                 1335

Asp Leu  Val Ala Lys Tyr Asn  Thr Asn Asn Gly Ala  Pro Lys Asp
    1340                 1345                 1350

Phe Leu  Pro Ser Pro Leu His  Ala Leu Leu Arg Glu  Trp Thr Thr
    1355                 1360                 1365

Tyr Pro  Glu Ser Thr Val Gly  Thr Leu Met Ser Lys  Leu Arg Glu
    1370                 1375                 1380

Leu Gly  Arg Arg Asp Ala Ala  Asp Leu Leu Leu Lys  Ala Ser Ser
    1385                 1390                 1395

Val Phe  Lys Ile Asn Leu Asp  Gly Asn Gly Gln Glu  Ala Tyr Ala
    1400                 1405                 1410

Ser Ser  Cys Asn Ser Gly Thr  Ser Tyr Asn Ser Ile  Ser Ser Val
    1415                 1420                 1425

Val Ser  Arg
    1430
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Met Ala Gly Phe Ser Pro Trp Arg Arg Arg Gln Arg Arg Arg Arg Arg
1               5                  10                  15
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cgg cgg cgg gcg agg cac gct tcg cgg gca gca cca gaa ctg gtc ggt      96
Arg Arg Arg Ala Arg His Ala Ser Arg Ala Ala Pro Glu Leu Val Gly
            20                  25                  30

gat tta ggt agt ttc ctg ttg ttg gga tcc acc ttt ctc tcg aca ggc     144
Asp Leu Gly Ser Phe Leu Leu Leu Gly Ser Thr Phe Leu Ser Thr Gly
        35                  40                  45

acg aca ctg ccc ttc att act tca gtt gaa atc gtc tcc agg tac ctc     192
Thr Thr Leu Pro Phe Ile Thr Ser Val Glu Ile Val Ser Arg Tyr Leu
    50                  55                  60

tgc gcg cgg ggg tcg ggc cgc gcg ggg cat cac ggc cct ggt cgt gcc     240
Cys Ala Arg Gly Ser Gly Arg Ala Gly His His Gly Pro Gly Arg Ala
65                  70                  75                  80

agg cct gcg gtg gca acc tcg gct ttc cct gct cag gag cct cgt gtc     288
Arg Pro Ala Val Ala Thr Ser Ala Phe Pro Ala Gln Glu Pro Arg Val
                85                  90                  95

ttt ctc cgc agc gct ttg cca gcc ggc cgg ctt tcc cct tcc acc aca     336
Phe Leu Arg Ser Ala Leu Pro Ala Gly Arg Leu Ser Pro Ser Thr Thr
            100                 105                 110

cac ctc cac ctg gtc aca gca gat aac cca gca gcc aac tgg ctt cat     384
His Leu His Leu Val Thr Ala Asp Asn Pro Ala Ala Asn Trp Leu His
        115                 120                 125

gcg cgc tcc act cgg aaa aag cgg tgc ccc tat aca aaa cac cag acc     432
Ala Arg Ser Thr Arg Lys Lys Arg Cys Pro Tyr Thr Lys His Gln Thr
    130                 135                 140

ctg gaa ctg gag aaa gag ttt ctg ttc aac atg tac ctc acc agg gac     480
Leu Glu Leu Glu Lys Glu Phe Leu Phe Asn Met Tyr Leu Thr Arg Asp
145                 150                 155                 160

cgc agg tac gag gtg gct cga ctg ctc aac ctc acc gag agg cag gtc     528
Arg Arg Tyr Glu Val Ala Arg Leu Leu Asn Leu Thr Glu Arg Gln Val
                165                 170                 175

aag atc tgg ttc cag aac cgc agg atg aaa atg aag aaa atc aac aaa     576
Lys Ile Trp Phe Gln Asn Arg Arg Met Lys Met Lys Lys Ile Asn Lys
            180                 185                 190

gac cga gca aaa gac gag tga                                        597
Asp Arg Ala Lys Asp Glu
        195
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Met Ala Gly Phe Ser Pro Trp Arg Arg Arg Gln Arg Arg Arg Arg Arg
1               5                   10                  15
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Arg Arg Arg Ala Arg His Ala Ser Arg Ala Ala Pro Glu Leu Val Gly
20 25 30

Asp Leu Gly Ser Phe Leu Leu Leu Gly Ser Thr Phe Leu Ser Thr Gly
35 40 45

Thr Thr Leu Pro Phe Ile Thr Ser Val Glu Ile Val Ser Arg Tyr Leu
50 55 60

Cys Ala Arg Gly Ser Gly Arg Ala Gly His His Gly Pro Gly Arg Ala
65 70 75 80

Arg Pro Ala Val Ala Thr Ser Ala Phe Pro Ala Gln Glu Pro Arg Val
85 90 95

Phe Leu Arg Ser Ala Leu Pro Ala Gly Arg Leu Ser Pro Ser Thr Thr
100 105 110

His Leu His Leu Val Thr Ala Asp Asn Pro Ala Ala Asn Trp Leu His
115 120 125

Ala Arg Ser Thr Arg Lys Lys Arg Cys Pro Tyr Thr Lys His Gln Thr
130 135 140

Leu Glu Leu Glu Lys Glu Phe Leu Phe Asn Met Tyr Leu Thr Arg Asp
145 150 155 160

Arg Arg Tyr Glu Val Ala Arg Leu Leu Asn Leu Thr Glu Arg Gln Val
165 170 175

Lys Ile Trp Phe Gln Asn Arg Arg Met Lys Met Lys Lys Ile Asn Lys
180 185 190

Asp Arg Ala Lys Asp Glu
195